

WASHINGTON STATE DEPARTMENT OF HEALTH OFFICE OF FOOD SAFETY AND SHELLFISH PROGRAMS

ANNUAL GROWING AREA REVIEW

PREPARED BY: Donald J. Melvin, Environmental Specialist
AREA: Henderson Inlet
YEAR ENDING: December 31, 2005
CLASSIFICATION: Approved, Conditionally Approved, Prohibited

ACTIVITIES IN THE GROWING AREA IN 2005:

Samples were collected monthly from Henderson Inlet. Henderson Inlet was sampled ten times when the “conditionally approved” area was in open status. The “conditionally approved” area was closed to commercial harvest for a total of 93 days in accordance with the current management plan requirements for a 5-day closure following a 24-hour rainfall accumulation of 0.5 inch or more. Forty-nine acres of “conditionally approved” shellfish beds at the south end of the growing area were downgraded to “prohibited”. Shellfish were relayed from Henderson Inlet into Burley Lagoon. Henderson Inlet is within a shellfish protection district that was formed by Thurston County in 2001. Restoration activities are ongoing.

ANALYTICAL RESULTS OF WATER SAMPLES:

Table #1 summarizes the most recent 30 samples collected from each of the “conditional” area stations when the area was open to harvest under the current management plan. Table #1 shows that all stations in the “conditionally approved” area pass the NSSP water quality standard. Station #195 is threatened and stations #190, #191, #194, #197, #198, and #201 are of concern due to elevated bacteria levels.

Table #2 summarizes the most recent 30 samples collected from each of the “approved” and “prohibited” area stations. Table #2 shows that all stations in the “approved” portion of Henderson Inlet pass the NSSP water quality standard. Approved area station #202 is threatened and stations #193, #203, and #206 are of concern due to elevated bacteria levels.

Individual sample results from stations #195 and #202 are shown in Tables 3 and 4 respectively. The shaded rows in Table 3 are sampling events that occurred when the “conditionally approved” area was closed to harvest due to rainfall. These sampling dates are excluded from the Table 1 summary.

CHANGE IN ACTUAL POLLUTION SOURCES THAT IMPACT THE GROWING AREA:

Current water quality data indicate that water borne pollution is increasing in the Henderson Inlet watershed.

CLASSIFICATION STATUS:

- ☐ Well within the classification standards
- ☐ Meets standards but some concerns
- ☒ Meets standards but threatened with a downgrade in classification
- ☐ Fails to meet classification standards

REMARKS AND RECOMMENDATIONS:

Henderson Inlet is on the 303d list for fecal coliform. The Approved, Conditionally Approved and Prohibited areas in Henderson Inlet are correctly classified.

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MANAGEMENT PLAN EVALUATION – BRIEFLY DESCRIBE THE FOLLOWING COMPONENTS:

- 1. Have all parties involved complied with the conditions in the management plan..... Yes
- 2. Has reporting been adequate to manage the conditional area..... Yes
- 3. Does the area consistently meet approved area criteria when it is open for harvest..... Yes
- 4. Has a field inspection of critical pollution sources been conducted..... Yes

TABLE 1**SUMMARY OF MARINE WATER DATA (SRS)**Growing Area: **HENDERSON INLET**Classification: **Conditionally Approved**From **06/18/2002** To **12/20/2005****FECAL COLIFORM ORGANISMS/100 ML**Rainfall Information is **Day 0** for 4 days prior between **0.00** and **0.49**

Station Number	Classification	Number of Samples	Range	Geometric Mean	Est. 90th Percentile	Meets Std.
190	Conditionally Approved	30	1.7 - 46.0	7.4	28.0	Yes
191	Conditionally Approved	30	1.7 - 49.0	6.3	24.0	Yes
194	Conditionally Approved	30	1.7 - 49.0	4.9	20.0	Yes
195	Conditionally Approved	30	1.7 - 33.0	9.3	34.0	Yes
196	Conditionally Approved	30	1.7 - 46.0	4.6	16.0	Yes
197	Conditionally Approved	30	1.7 - 33.0	6.7	20.0	Yes
198	Conditionally Approved	30	1.7 - 49.0	6.2	25.0	Yes
199	Conditionally Approved	30	1.7 - 46.0	3.9	11.0	Yes
200	Conditionally Approved	30	1.7 - 46.0	5.7	19.0	Yes
201	Conditionally Approved	30	1.7 - 49.0	5.9	24.0	Yes

All tides information is presented

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

TABLE 2**SUMMARY OF MARINE WATER DATA (SRS)**Growing Area: **HENDERSON INLET**Classification: **Approved,Prohibited**From **06/05/2003** To **12/20/2005****FECAL COLIFORM ORGANISMS/100 ML**

Station Number	Classification	Number of Samples	Range	Geometric Mean	Est. 90th Percentile	Meets Std.
192	Approved	30	1.7 - 110.0	4.4	16.0	Yes
193	Approved	30	1.7 - 350.0	6.3	28.0	Yes
202	Approved	31	1.7 - 350.0	6.9	33.0	Yes
203	Approved	31	1.7 - 240.0	5.2	27.0	Yes
204	Approved	31	1.7 - 49.0	5.3	18.0	Yes
205	Approved	31	1.7 - 110.0	5.1	19.0	Yes
206	Approved	31	1.7 - 350.0	3.8	23.0	Yes
207	Approved	31	1.7 - 49.0	2.5	7.0	Yes
208	Approved	31	1.7 - 79.0	4.1	17.0	Yes
209	Approved	31	1.7 - 22.0	2.8	7.0	Yes
185	Prohibited	30	2.0 - 1,600.0	25.6	147.0	No
186	Prohibited	31	1.7 - 1,600.0	19.6	125.0	No
187	Prohibited	31	1.7 - 920.0	13.8	75.0	No
188	Prohibited	31	1.7 - 2,400.0	18.9	111.0	No
189	Prohibited	31	2.0 - 540.0	15.3	86.0	No
212	Prohibited	31	2.0 - 350.0	14.3	69.0	No

All tides information is presented

The standard for approved shellfish growing waters is fecal coliform geometric mean not greater than 14 organisms/100 ml and an estimate of the 90th percentile not greater than 43 organisms/100 ml. The above table shows bacteriological results in relation to program standards.

TABLE 3**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**Growing Area: **HENDERSON INLET**Sampling Station Number: **195**Classification: **Conditionally Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
06/18/2002	11:03	Flood	17	13	28
07/01/2002	10:41	Flood	4.5	13	27
08/14/2002	10:53	Flood	26	17	29
09/11/2002	09:07	Flood	17	16	28
10/09/2002	08:37	Flood	6.8	13	28
11/20/2002	09:19	Ebb	2	10	28
12/10/2002	10:35	Flood	7.8	10	28
01/08/2003	09:31	Flood	11	7	25
02/11/2003	11:25	Flood	7.8	7	21
03/04/2003	09:00	Ebb	1.7	7	26
04/07/2003	08:28	Flood	17	8	14
05/06/2003	08:12	Flood	22	9	22
06/05/2003	08:27	Flood	33	15	21
07/16/2003	08:26	Ebb	22	16	28
08/20/2003	09:26	Flood	7.8	17	28
09/30/2003	08:41	Flood	33	14	28
10/15/2003	10:25	Flood	2	11	26
11/13/2003	09:02	Flood	4.5	9	25
12/02/2003	10:57	Flood	7.8	9	27
01/08/2004	09:03	Ebb	49	4	19
02/03/2004	11:00	Ebb	49	6	14
03/02/2004	09:42	Ebb	4.5	6	12
04/28/2004	10:41	Flood	17	11	20
05/24/2004	08:39	Flood	7.8	13	27
06/21/2004	07:36	Flood	33	17	25
07/07/2004	08:59	Flood	17	14	27
08/19/2004	09:41	Ebb	23	18	28
09/07/2004	11:33	Flood	2	16	28
10/19/2004	12:02	Ebb	11	12	28
11/16/2004	11:00	Ebb	2	10	30
12/14/2004	09:10	Ebb	33	9	28
01/11/2005	11:02	Ebb	1.7	4	24
02/01/2005	09:16	Flood	4	7	25
03/15/2005	09:00	Ebb	2	9	26
04/13/2005	08:43	Flood	2	7	15
05/17/2005	10:18	Flood	13	13	26
06/15/2005	09:12	Flood	6.8	14	25
07/12/2005	08:54	Flood	23	15	25
08/10/2005	09:27	Flood	17	17	30
09/07/2005	09:10	Flood	33	15	28
10/19/2005	10:08	Ebb	14	13	29
11/01/2005	11:06	Ebb	350	11	12
12/20/2005	10:22	Ebb	11	6	12

Number of Samples: 43

Geometric Mean: 10.5

Range: 1.7 - 350

Estimated 90th Percentile: 45

TABLE 4**SUMMARY OF SHELLFISH GROWING AREAS
WATER QUALITY STUDY RESULTS**Growing Area: **HENDERSON INLET**Sampling Station Number: **202**Classification: **Approved**

Sample Date	Sample Time	Tide	Fcoli/100ml	Temperature	Salinity
06/05/2003	08:11	Flood	2	14	26
07/16/2003	08:07	Ebb	13	16	28
08/20/2003	08:55	Flood	7.8	16	26
09/30/2003	08:18	Flood	4.5	14	29
10/15/2003	10:06	Flood	7.8	11	27
11/13/2003	08:43	Flood	4.5	9	27
12/02/2003	10:36	Flood	1.7	8	28
01/08/2004	08:45	Ebb	33	5	20
02/03/2004	10:36	Ebb	23	6	25
03/02/2004	09:16	Ebb	4.5	6	18
04/28/2004	10:19	Flood	1.7	11	27
05/24/2004	08:56	Ebb	2	12	28
06/21/2004	07:19	Flood	23	15	28
07/07/2004	08:39	Flood	13	14	29
08/19/2004	09:22	Ebb	350	17	28
09/07/2004	11:10	Flood	4.5	16	29
10/19/2004	11:35	Flood	5.65	13	28
11/16/2004	10:37	Ebb	7.8	11	30
12/14/2004	08:50	Ebb	13	9	27
01/11/2005	10:36	Ebb	4.5	6	25
02/01/2005	08:54	Flood	2	7	25
03/15/2005	08:39	Flood	4.5	9	28
04/13/2005	08:26	Flood	2	7	25
05/17/2005	09:49	Flood	4.5	12	28
06/15/2005	09:39	Flood	1.7	14	28
07/12/2005	08:30	Flood	7.8	15	28
08/10/2005	10:09	Flood	11	17	30
09/07/2005	08:46	Flood	7.8	15	30
10/19/2005	09:41	Ebb	7.8	13	29
11/01/2005	10:33	Ebb	130	12	26
12/20/2005	09:46	Flood	2	7	26

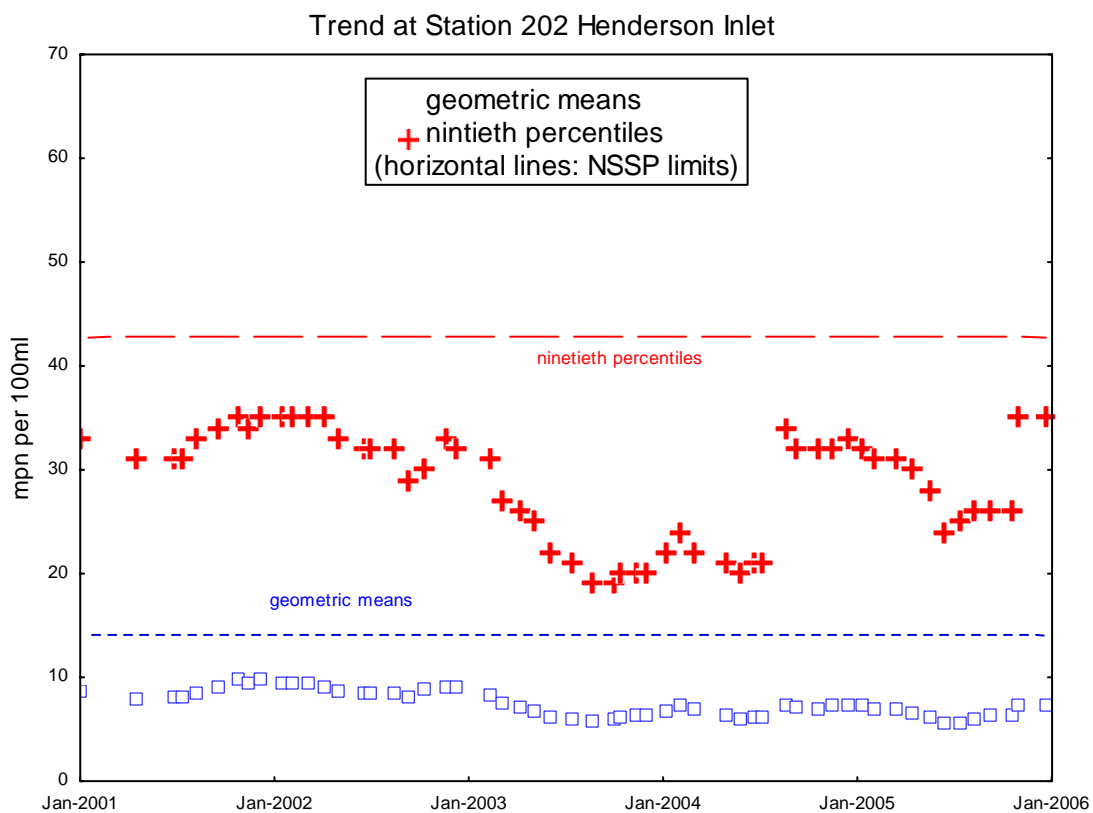
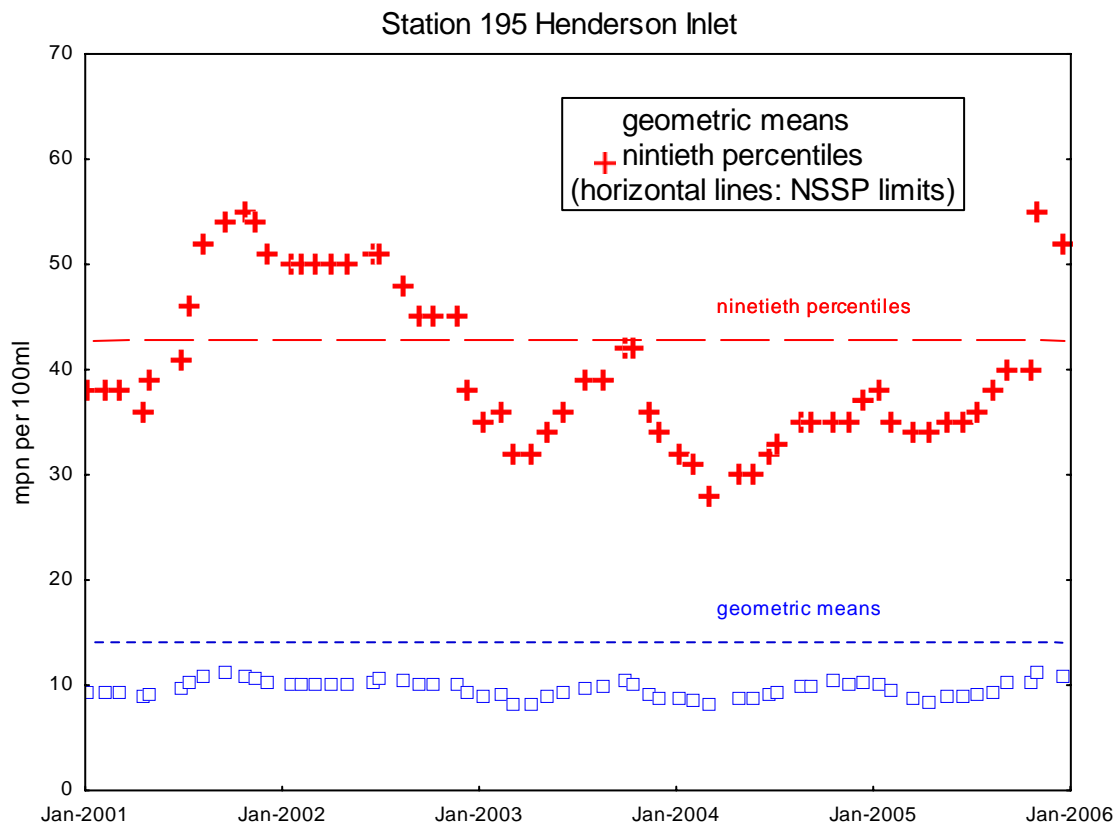
Number of Samples: 31

Geometric Mean: 6.9

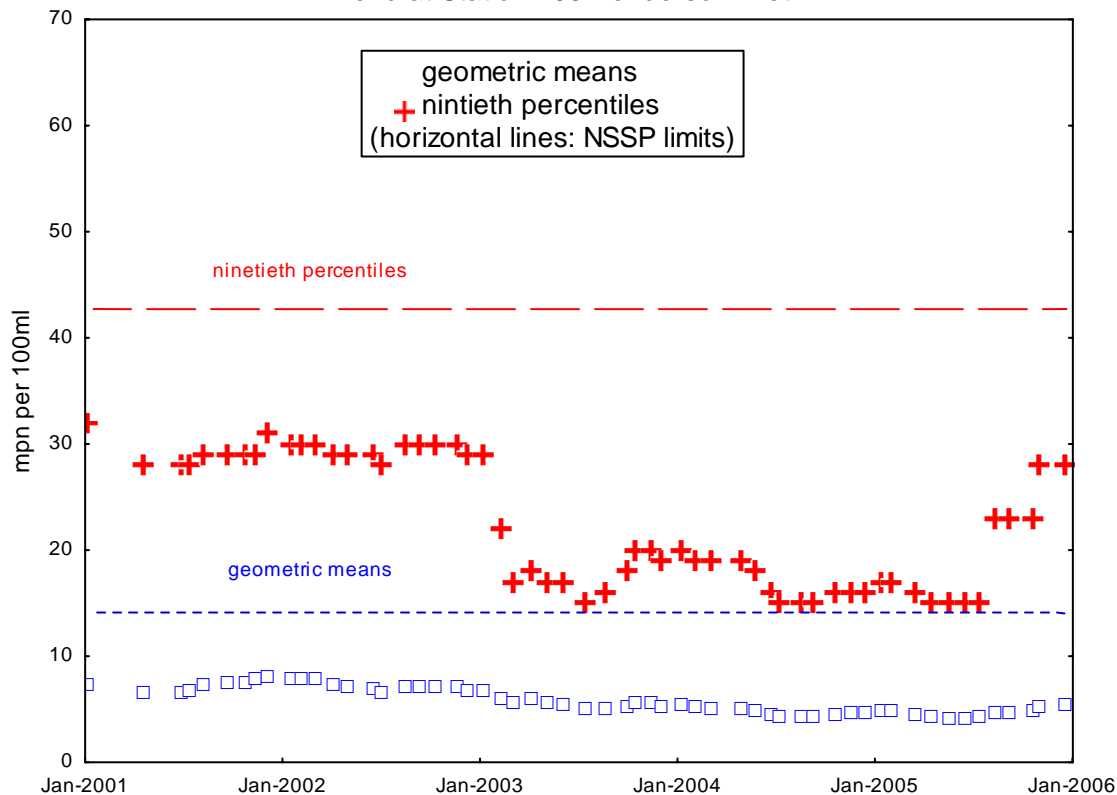
Range: 1.7 - 350

Estimated 90th Percentile: 33

Most recent five-year trend in fecal coliform pollution.



Trend at Station 203 Henderson Inlet



Trend at Station 206 Henderson Inlet

